ABSTRACT

In the prior art in which permanent magnets are regularly arranged over the whole circumference of a rotor core, a satisfactory magnetic flux distribution is hard to obtain, and the cogging torque and the distortion factor of the induced electromotive force waveform are large, whereby characteristics of a rotating electric machine are poor. Also, because the permanent magnets are arranged over the whole circumference, a large number of permanent magnets are required and cost reduction is difficult.

A permanent magnet rotating electric machine of the invention comprises a stator provided with a plurality of windings, and a rotor in which magnets are disposed in slots formed in a rotor core along an outer circumference thereof, the rotor core being fixed on a rotary shaft rotating inside the stator, and in which one magnetic pole is constituted by each group of three or more of the magnets. A total angle occupied by the group of magnets constituting one magnetic pole is in the range of 150 to 165 degrees in terms of an electrical angle.